Congressional Notification Profile

DE-PS26-02NT41369

UNIVERSITY COAL RESEARCH PROGRAM, CORE PROGRAM
Texas A&M University

Background and Technical Information:
Project Title: "Kinetics of Slurry Phase Fischer-Tropsch Synthesis."

This project proposes to develop a kinetics model that predicts concentrations of Fischer-Tropsch slurries using an iron catalyst that TAMU, developed through an earlier DOE-sponsored research program. Experimental data from a stirred tank slurry reactor over a range of process conditions will be used to validate the model. If successful, the model could be used for preliminary reactor design and process economics study.

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Congressional District: 08 District County: Brazos

Financial Information:

Length of Contract (months): 36
Government Share: $200,000
Total value of contract: $200,000

DOE Funding Breakdown:
Funds: FY 2002 $200,000

Kinetics of Slurry Phase Fischer-Tropsch Synthesis

A proposal submitted to the DOE/University Coal Research Program

This proposal is being submitted to the UCR core program as an individual university application.

Texas A&M University (TAMU) will develop a comprehensive kinetic model for slurry phase Fischer-Tropsch catalysts. This model will be validated with experimental data obtained in a stirred tank slurry reactor (STSR) over a wide range of process conditions. The model will be able to predict concentrations of all reactants and major product species (H_2O, CO_2, linear 1- and 2-olefins, and linear paraffins) as a function of reaction conditions in the STSR. The model will be useful for preliminary reactor design and process economics study.

A precipitated iron catalyst with nominal composition 100 Fe/3 Cu/4 K/16 SiO_2 (in parts by weight) will be used to generate data on product distribution as a function of operating conditions. This catalyst was developed at TAMU under DOE sponsorship and it has excellent performance characteristics (high activity and selectivity to liquid and high molecular weight hydrocarbons, low methane selectivity and excellent stability with time on stream).